

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-9 (Canceled).

10. (Currently Amended) A turbine having multiple turbine stages, first and second turbine stages comprising:

a wheel having sixty broach slots, each one of said broach slots having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said sixty broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and wheelposts act to reduce stresses acting on said fitted buckets and wheelposts, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein the straight surfaces of each of the two uppermost tangs on each side of a center line bisecting each of said buckets define two points of a respective line that form an angle of  $20.782^\circ$  with the center line; ~~line, each of said points being determined by intersecting tangent lines along pressure faces of the respective said uppermost tangs, and;~~

wherein a point defined by intersecting tangent lines along pressure faces of the bottom most tang does not lie on either line that forms the angle of  $20.782^\circ$  with the center line.

Claim 11 (Canceled).

12. (Currently amended) A turbine as claimed in claim ~~11~~ 10, wherein the fillets formed on said plurality of buckets have angles ranging from  $50^\circ$  to  $57^\circ$ .

13. (Original) A turbine as claimed in claim 10, each one of said buckets and wheelposts having three interleaved tangs and fillets.

14. (Original) A turbine as claimed in claim 13, wherein each of said buckets having a bottom tang formed from curved surfaces having more than one radius of curvature.

15. (Original) A turbine as claimed in claim 14, wherein each of said buckets further includes at least one straight surface.

16. (Original) A turbine as claimed in claim 10, wherein each of said wheelposts having a bottom fillet formed from curved surfaces having more than one radius of curvature.

17. (Original) A turbine as claimed in claim 16, wherein each of said wheelposts further includes at least one straight surface.

18. (Previously Presented) A turbine as claimed in claim 14, wherein said curved surfaces have radii of curvatures of .3762 inches and .5556 inches.

19. (Previously Presented) A turbine as claimed in claim 16, wherein said curved surfaces have radii of curvatures of .3822 inches and .5616 inches.

20. (Original) A turbine as claimed in claim 10, wherein a top surface of each one of said wheelposts being scalloped so as to reduce the weight of said wheel.

Claims 21 – 28 (Canceled).

29. (Currently Amended) A bucket for insertion into a wheelpost of a turbine rotor, ~~in a first or second stage of a turbine,~~ said bucket being formed from interleaved

fillets and tangs which complement interleaved fillets and tangs formed in the wheelpost,

wherein said interleaved system of fillets and tangs on said buckets and wheelposts act to reduce stresses acting on said fitted buckets and wheelposts, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein the straight surfaces of each of the two uppermost tangs on each side of a center line bisecting each of said buckets define two points of a respective line that form an angle of  $20.782^\circ$  with the center line; ~~line, each of said points being determined by intersecting tangent lines along pressure faces of the respective said uppermost tangs, and;~~

wherein a point defined by intersecting tangent lines along pressure faces of the bottom most tang does not lie on either line that forms the angle of  $20.782^\circ$  with the center line.

30. (Original) A bucket as claimed in claim 29, said bucket having three interleaved tangs and fillets.

31. (Original) A bucket as claimed in claim 30, said bucket having a bottom tang formed from curved surfaces having more than one radius of curvature.

32. (Original) A bucket as claimed in claim 31, said bucket further including at least one straight surface.

33. (Original) A bucket as claimed in claim 31, said curved surfaces having radii of curvatures of .3762 inches and .5556 inches.

34. (Original) A bucket as claimed in claim 30, said bucket having an upper tang formed from curved surfaces having more than one radius of curvature.

35. (Original) A bucket as claimed in claim 31, said bucket having an upper tang formed from curved surfaces having more than one radius of curvature.

36. (Original) A bucket as claimed in claim 34, said bucket further including at least one straight surface.

37. (Original) A bucket as claimed in claim 30, said bucket having an intermediate tang formed from curved surfaces having more than one radius of curvature.

38. (Original) A bucket as claimed in claim 31, said bucket having an intermediate tang formed from curved surfaces having more than one radius of curvature.

39. (Original) A bucket as claimed in claim 35, said bucket having an intermediate tang formed from curved surfaces having more than one radius of curvature.

40. (Original) A bucket as claimed in claim 37, said bucket further including at least one straight surface.

41. (New) A turbine having multiple turbine stages, first and second turbine stages comprising:

a wheel having sixty broach slots, each one of said broach slots having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said sixty broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and broach slots act to reduce stresses acting on said fitted buckets and broach slots, the fillets and

tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein above the uppermost tang on each of said buckets there is a compound fillet having a first radius of curvature of 0.3342 inches and a second radius curvature of 0.0983 inches.

42. (New) The turbine as claimed in claim 41, wherein below the upper most tang on each of said buckets there is a fillet having a radius of curvature of 0.0741 inches.

43. (New) The turbine as claimed in claim 42, wherein above the bottom most tang on each of said buckets there is a fillet having a radius of curvature of 0.0897 inches.

44. (New) A turbine having multiple turbine stages, first and second turbine stages comprising:

a wheel having sixty broach slots, each one of said broach slots having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said sixty broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and broach slots act to reduce stresses acting on said fitted buckets and broach slots, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein for each one of said plurality of buckets the distance from the bottom of the bottom most tang to the upper most straight portion of the upper most fillet is 1.9836 inches.

45. (New) The turbine as claimed in claim 44, wherein for each one of said plurality of buckets the distance from the bottom of the bottom most tang to a first intersection point of tangent lines drawn along pressure faces of the tang adjacent to the bottom most tang is 0.8429 inches.

46. (New) The turbine as claimed in claim 45, wherein for each one of said plurality of buckets the distance from the bottom of the bottom most tang to a second intersection point of tangent lines drawn along pressure faces of the upper most tang is 1.2588 inches.

47. (New) The turbine as claimed in claim 46, wherein for each one of said plurality of buckets the distance from the bottom of the bottom most tang to a point defined by the intersection of a line through said first and second intersection points and a tangent line along an upper straight surface of the bottom most tang is 0.4177 inches.

48. (New) The turbine as claimed in claim 44, wherein for each one of said plurality of buckets the angle between the upper most straight portion of the upper most fillet and the upper most straight portion of the upper most tang is 50 degrees.

49. (New) The turbine as claimed in claim 45, wherein for each one of said plurality of buckets the angle between the upper most straight portion of the upper most fillet and the upper most straight portion of the upper most tang is 50 degrees.

50. (New) The turbine as claimed in claim 46, wherein for each one of said plurality of buckets the angle between the upper most straight portion of the upper most fillet and the upper most straight portion of the upper most tang is 50 degrees.

51. (New) The turbine as claimed in claim 47, wherein for each one of said plurality of buckets the angle between the upper most straight portion of the upper most fillet and the upper most straight portion of the upper most tang is 50 degrees.

52. (New) A turbine having multiple turbine stages, first and second turbine stages comprising:

a wheel having sixty broach slots, each one of said broach slots having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said sixty broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and broach slots act to reduce stresses acting on said fitted buckets and broach slots, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein below the uppermost tang on each of said broach slots there is a fillet having a radius of curvature of 0.0959 inches.

53. (New) The turbine as claimed in claim 52, wherein above the bottom most tang on each of said broach slots there is a fillet having a radius of curvature of 0.1037 inches.

54. (New) The turbine as claimed in claim 53, wherein below the bottom most tang on each of said broach slots there is a compound fillet having a first radius of curvature of 0.1248 inches and a second radius of curvature of 0.3822 inches, the first radius of curvature being measured from two points equally offset 0.0327 inches from either side of a center line bisecting each of said broach slots and at a distance of 0.3852 inches from the bottom of said compound fillet, and the second radius of curvature being measured from the center line bisecting each of said broach slots at a distance of 0.5616 inches from the bottom of said compound fillet.

55. (New) A turbine having multiple turbine stages, first and second turbine stages comprising:

a wheel having sixty broach slots, each one of said broach slots having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said sixty broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and broach slots act to reduce stresses acting on said fitted buckets and broach slots, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein for each one of said broach slots the distance from the bottom of the bottom most fillet to the upper most straight portion of the upper most tang is 1.9836 inches.

56. (New) The turbine as claimed in claim 55, wherein for each one of said broach slots the distance from the bottom of the bottom most fillet to a first intersection point of tangent lines drawn along pressure faces of the fillet adjacent to the bottom most fillet is 0.8433 inches.

57. (New) The turbine as claimed in claim 56, wherein for each one of said broach slots the distance from the bottom of the bottom most fillet to a second intersection point of tangent lines drawn along pressure faces of the upper most fillet is 1.2592 inches.

58. (New) The turbine as claimed in claim 57, wherein for each one of said broach slots the distance from the bottom of the bottom most fillet to a point defined by the intersection of a line through said first and second intersection points and a tangent line along an upper straight surface of the bottom most fillet is 0.4181 inches.



59. (New) The turbine as claimed in claim 55, wherein for each one of said broach slots the angle between the upper most straight portion of the upper most tang and the upper most straight portion of the upper most fillet is 50 degrees.

60. (New) The turbine as claimed in claim 56, wherein for each one of said broach slots the angle between the upper most straight portion of the upper most tang and the upper most straight portion of the upper most fillet is 50 degrees.

61. (New) The turbine as claimed in claim 57, wherein for each one of said broach slots the angle between the upper most straight portion of the upper most tang and the upper most straight portion of the upper most fillet is 50 degrees.

62. (New) The turbine as claimed in claim 58, wherein for each one of said broach slots the angle between the upper most straight portion of the upper most tang and the upper most straight portion of the upper most fillet is 50 degrees.